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Knot Floer homology and the four-ball genus Peter Ozsváth and Zoltán Szabó

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ABSTRACT

We use the knot filtration on the Heegaard Floer complex CFK to define a new invariant for knots. Like the classical signature, this invariant gives a homomorphism from the concordance group to \mathbb{Z} . As such, it gives lower bounds for the slice genus (and hence the unknotting number) of a knot; but unlike the signature, it gives sharp bounds for the slice genus of torus knots. As another illustration, we calculate the invariant for two-component links.

KEYWORDS

Floer homology, knot concordance, signature, 4–ball genus

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